

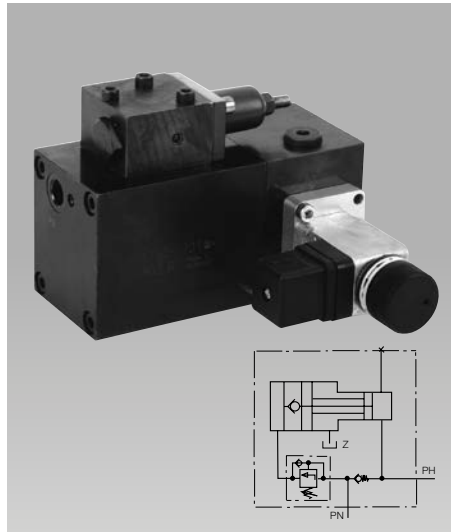


Intensifier 21 cm³

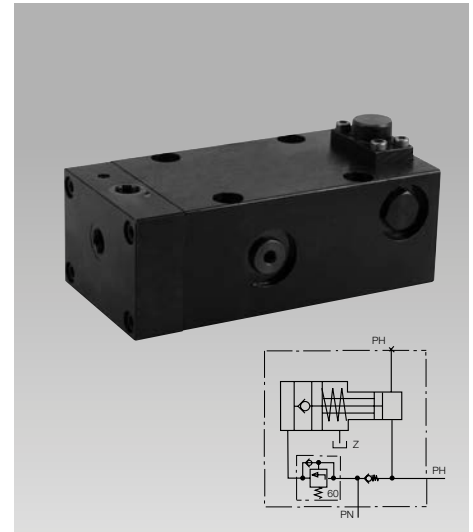
**Intensification ratio 1 : 4, max. operating pressure 500 / 125 bar
single and double acting**



Double-acting intensifier for single-acting cylinders



Double-acting intensifier with sequence valve for double-acting cylinders



Single-acting intensifier with integrated sequence valve for single-acting cylinders

Application

Hydraulic intensifiers convert a hydraulic pressure on the primary side (input) into a higher pressure on the secondary side (output). This enables the use of the comparatively low pressure of machine tool hydraulics to pressurise a hydraulic cylinder with quadruple pressure.

The oil quantity to be transmitted is not important for the intensifiers of this data sheet. Only after oil supply of the hydraulic cylinder in the low-pressure range is affected, the piston of intensification will be activated according to its specification by an external valve control or by an integrated switching function.

Important notes!

The intensification volume of the intensifiers is 21 cm³. This is the reason why no hydraulic element, which functions only with high pressure, e.g. hydraulic accumulators with a gas-preload pressure of more than 100 bar and an oil absorption exceeding 10 cm³, must be used in the high-pressure range.

The intensification volume of 21 cm³ is only used to generate the high-pressure, i.e. the compressibility of the hydraulic oil (1 % at a pressure increase of 150 bar) and the increase of volume of the high-pressure hoses (1 cm³ per m at a pressure increase of 100 bar) has to be considered.

Complete air bleeding of the hydraulic system is very important. The high-pressure part should be controlled by a pressure gauge.

The elements 8753-200, -201 and -203 can be equipped with a manifold-mounted pressure switch for machine tool interlock, when using 8753202 the pressure switch will be integrated in the piping. The switching pressure should be adjusted to 80 % of the secondary pressure.

When using pressure intensifiers 8753201 and 8753202 pay attention that no liquids penetrate through venting port "Z".

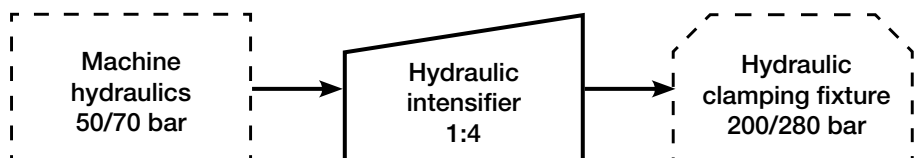
The vent screw with sintered metal air filter can be removed and a vent hose can be connected, if required.

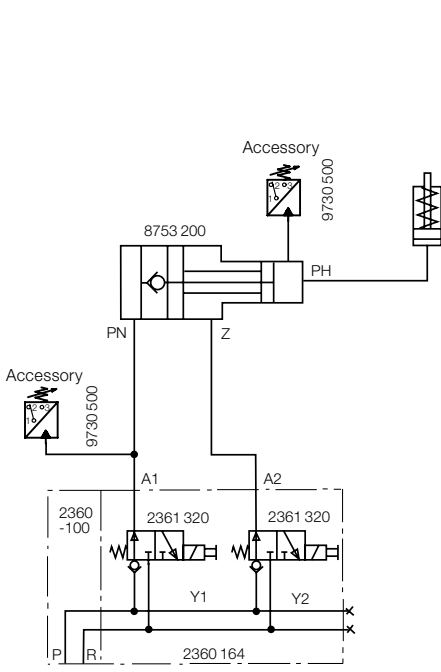
Operating conditions, tolerances and other data see data sheet A 0.100.

Accessory

Pressure switch as per data sheet F 9.732.
Pressure gauge as per data sheet F 9.300.

Application example





Hydraulic circuit diagram for 8753200

Intensifier 8753200 is mainly used for single-acting hydraulic elements.

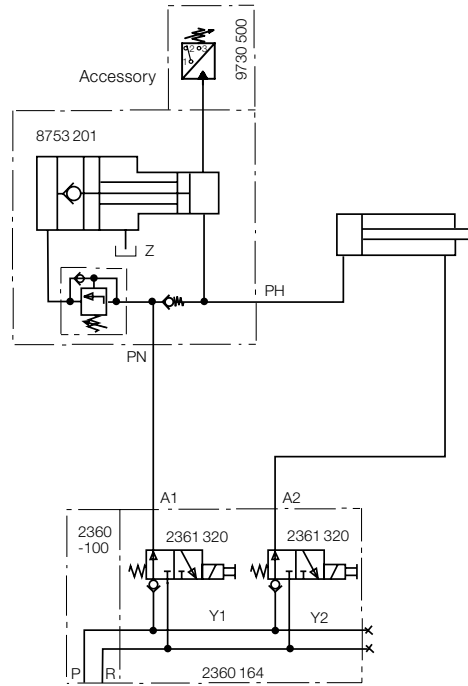
To fill the hydraulic cylinder, the piston of intensification must be kept in its off-position via control port "Z". For this purpose a second 3/2 directional control valve Y2 is required. In order to intensify the pressure after filling with the ratio 1:4, this valve has to be discharged in the low-pressure area to the reservoir after pressure built-up.

This timing will be determined by a pressure switch mounted in the low-pressure area between the valve and the intensifier.

To unclamp the hydraulic cylinder, the low-pressure port is discharged to the reservoir and the control port "Z" is connected to pressure. The piston of intensification moves to its off-position and the check valve opens.

Option: the pressure switch can be mounted in the high-pressure range to effect an active pressure monitoring for machine tool interlock.

See application example on page 4.



Hydraulic circuit diagram for 8753201

Intensifier 8753201 is used for double-acting hydraulic elements.

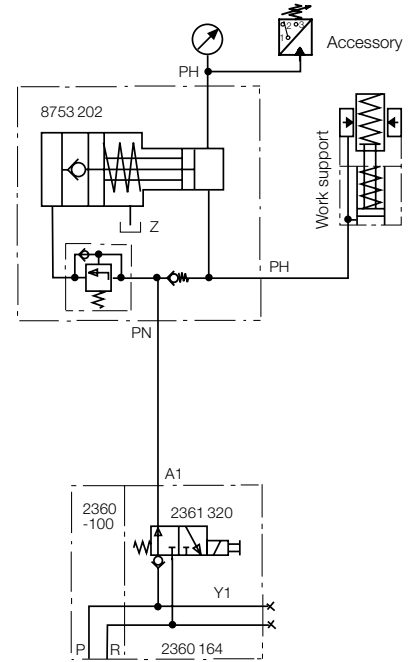
For filling in the low-pressure range, oil flows through the incorporated check valve to the cylinder.

The intensifier will be only activated, if the adjusted opening pressure at the integrated sequence valve is exceeded. The opening pressure should be approx. 80–90% of the max. low-pressure.

The returning oil during unclamping of the cylinder presses the piston of intensification in its off-position and opens the check valve in the piston. Via this valve the oil returns to the reservoir.

The function group intensifier/hydraulic cylinder is switched like a double-acting cylinder, i.e. without further control elements by two assigned 3/2 directional control valves.

The pressure switch which can be retrofitted in the high-pressure range is used for pressure monitoring for machine tool interlock.



Hydraulic circuit diagram for 8753-202 / -203

The single-acting intensifiers 8753202 and 8753203 are used for operation of single-acting hydraulic elements e.g. work supports.

For filling in the low-pressure range, oil flows through the incorporated check valve to the cylinder. The intensifier will be only activated, if the adjusted pressure at the integrated sequence valve is exceeded.

This opening pressure is not adjustable and is approx. 60 bar for 8753202 and approx. 40 bar for 8753203. The operating pressure on the low-pressure side should be at least 0 bar above this opening pressure. Both versions generate on the high-pressure side a pressure that is 3.85 times higher than the pressure on the low-pressure side.

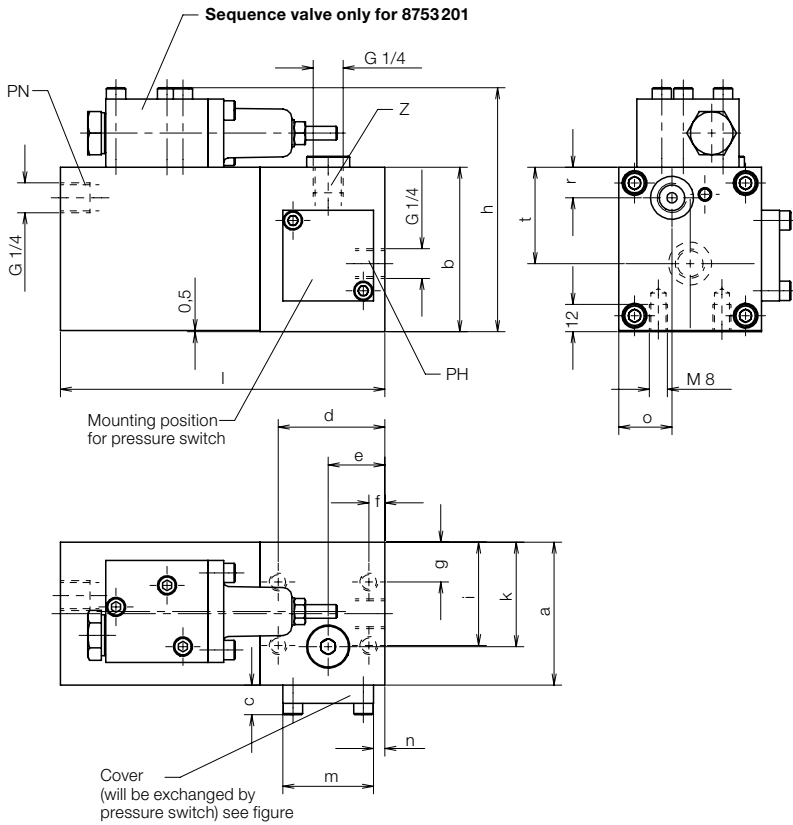
During unclamping the piston will be returned by an installed spring. The check valve will be opened in the off-position and the connected cylinders return also to their off-position.

By means of an additional pressure gauge the high-pressure part can be controlled.

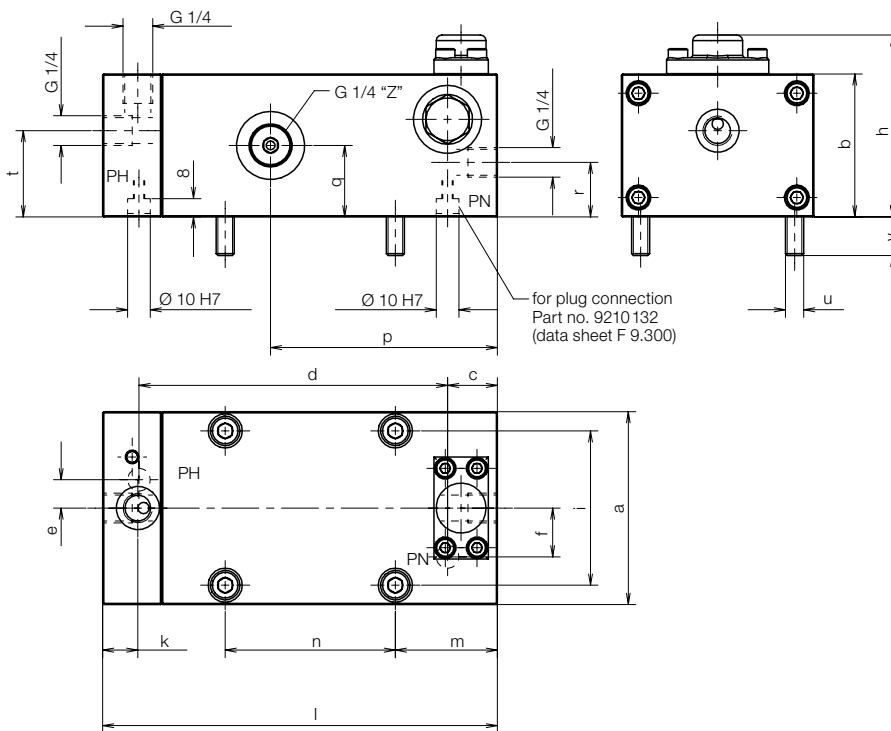
An additional pressure switch monitors the pressure for machine tool interlock.

See application example on page 4.

Dimensions



	①	②
Versions		
Sequence valve	without	with
Intensification ratio	1:4	1:4
High-pressure side		
Max. operating press. [bar]	500	500
Low-pressure side		
Max. operating press. [bar]	125	125
Max. flow rate [l/min]	8	8
Intensification volume [cm ³]	21	21
a [mm]	60	63
b [mm]	60	72.5
c [mm]	13	13
d [mm]	47	47
e [mm]	25	25
f [mm]	7	7
g [mm]	16	17.5
h [mm]	-	107.5
i [mm]	44	45.5
k [mm]	14	46
l [mm]	135	143
m [mm]	40x40	40x40
n [mm]	5	5
o [mm]	30	23.5
t [mm]	30	42.5
r [mm]	15	13.5
Part no.	8753200	8753201



Intensification ratio	1:3.85	1:3.85
Low-pressure side:		
Sequence pressure [bar]	approx. 60	approx. 40
Min. operating press.* [bar]	70	50
Max. operating press. [bar]	130	130
High-pressure side:		
Min. operating press. [bar]	270	190
Max. operating press. [bar]	500	500
Max. flow rate [l/min]	8	8
Usable oil volume [cm ³]	21	21
a [mm]	85	85
b [mm]	63	63
c [mm]	22	22
d ±0.1 [mm]	136	136
e ±0.1 [mm]	12.5	12.5
f ±0.1 [mm]	21.5	21.5
h +2 [mm]	80	80
i [mm]	68	68
k [mm]	15.5	15.5
l [mm]	174	174
m [mm]	45	45
n [mm]	75	75
p [mm]	100	100
q [mm]	31.5	31.5
r [mm]	24	24
t [mm]	38	38
u	M 8	M 8
v [mm]	17	17
Part no.	8753202	8753203

* Minimum pressure of machine hydraulics

Use of intensifiers for work supports

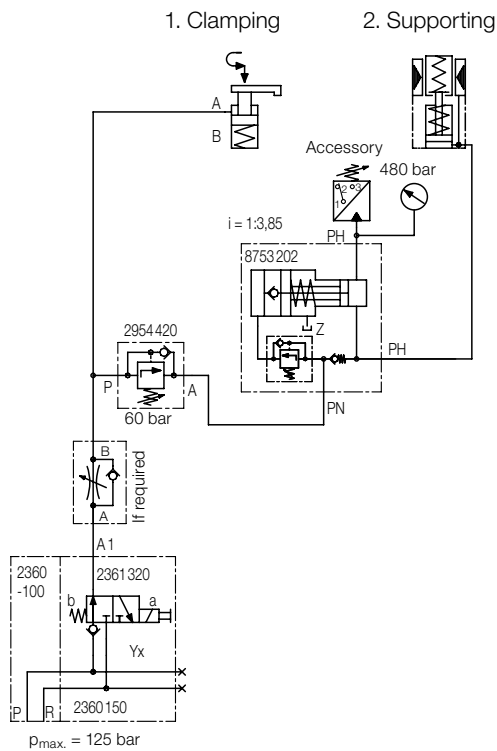
Starting situation

A workpiece shall be clamped with swing clamps onto fixed points and then additionally supported. The machine hydraulics has an operating pressure of 125 bar, but this is too little for a sufficient retention force of the work supports.

Solutions

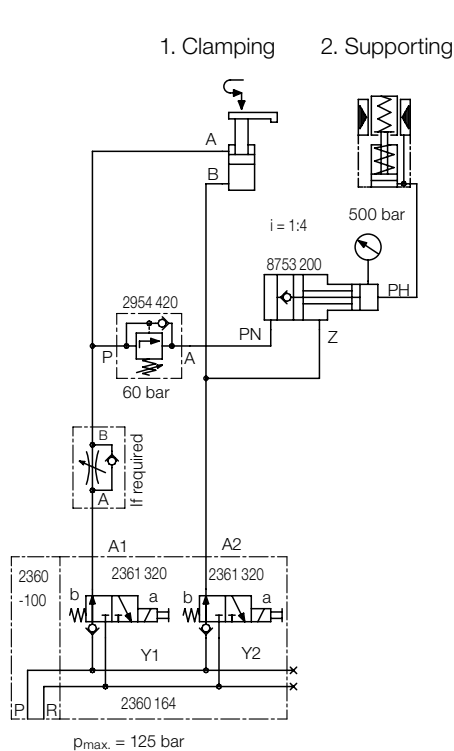
Hydraulic control - single acting

For single-acting connection only intensifier 8753 202 can be used. With intensification ratio 1:3.85 a pressure of approx. 480 bar will be obtained at the work support.



Hydraulic control - double acting

For double-acting connection the pressure intensifier 8753 200 with an intensification ratio of 1:4 supplies a pressure of 500 bar.



Important note!

Bleed carefully during start-up, since these intensifiers deliver in the high-pressure part only an oil volume of 21 cm³.